

**IN THE DRAWINGS:**

The attached sheet of drawings includes changes to Figure 1. This sheet replaces the original sheet including Figure 1. In Figure 1, one of the duplicated reference number 138 has been changed to 146.

## REMARKS

This is intended as a full and complete response to the Office Action dated December 13, 2005, having a shortened statutory period for response set to expire on March 13, 2006. Please reconsider the claims pending in the application for reasons discussed below.

Claims 1-3, 7-13, and 17-36 remain pending in the application and are shown above. Claims 1-3, 7-13, and 17-26 stand rejected by the Examiner. Claims 12, 19, and 26 are amended to correct matters of form. Claims 1 and 21 are amended to clarify the invention. The amendments are supported by the specification and drawings at least at page 6, paragraph 26, and at page 8, paragraphs 31-32 without introducing new matter. Applicant reserves the right to pursue the subject matter of the original claims at a later date. Reconsideration of the rejected claims is requested for reasons presented below.

### Claim Rejections - 35 USC § 102

Claims 1, 2, 7, 8, and 21-24 stand rejected under 35 USC § 102(b) as being anticipated by *Harashima et al.* (US Patent No. 5,677,824). The Examiner states that *Harashima et al.* teaches a method of lifting a substrate from chuck and projecting a first set of pins (release pins 1) a first distance above the surface of a substrate support, projecting a second set of lift pins 9 a second distance above the surface of the substrate support. Applicant respectfully traverses the rejection.

*Harashima et al.* discloses a plurality of release pins 1 for an electrostatic chuck. However, each of the plurality of the release pin 1 is independently operated by each of a plurality of drive mechanisms 2, respectively, to thrust up only a portion of the perimeter of a wafer 10 at a time for lifting up the peripheral of the wafer 10 in a stepwise manner within a total allowable elastic deformation range of the wafer 10. As a result, the wafer 10 can be released from a stage 5 which is supporting the wafer 10. (See, Abstract and column 3, lines 50-60.) As described by *Harashima et al.*, a control device is used to selectively actuate different groups of the drive mechanisms 2 to respectively thrust up the plurality of release pins 1 stepwise by 0.1mm at a time within an allowable elastic deformation range of the semiconductor substrate for a maximum

of 0.5 mm until the wafer 10 is released from a substrate support stage 5. (See, column 3, lines 36-65.) When the wafer 10 is released from the stage 5, the lift pins 9 are then raised to allow a fork 11 to be inserted under the wafer 10. *Harashima et al.* also describes that, after confirming that the wafer 10 is released from the stage 5, a set of lift pins 9 is raised by an elevation mechanism 8 to lift the wafer 10 to a transfer position. The plurality of the drive mechanisms 2 and the elevation mechanism 8 are independent devices which are separately controllable. *Harashima et al.* does not teach, show or suggest actuating a substrate support. *Harashima et al.* does not teach, show or suggest actuating a substrate support to project both sets of lift pins above a surface of a substrate support or actuating a substrate support to displace both sets of lift pins.

Claims 1 and 21 and claims dependent thereon have been amended. Accordingly, *Harashima et al.* does not teach, show or suggest actuating a substrate support to project a first set of lift pins a first distance above a surface of the substrate support and to project a second set of lift pins a second distance above the surface of the substrate support that is less than the first distance projected by the first set of lift pins, causing the substrate to form a bowed region between a plurality of the first set of lift pins by contacting a substrate with the first set of lift pins, and contacting the substrate in the bowed region with the second set of lift pins, as recited in amended claim 1 and claims dependent thereon.

*Harashima et al.* does not teach, show or suggest actuating a substrate support to displace a first set of lift pins and a second set of lift pins, the first set of lift pins movably disposed through the substrate support below a perimeter of the substrate, the second set of lift pins movably disposed through the substrate support below a center portion of the substrate and radially inwards of the first set of lift pins, projecting the first set of lift pins a first distance above a surface of the substrate support, and projecting the second set of lift pins a second distance above the surface of the substrate support that is less than the first distance projected by the first set of lift pins, as recited in amended claim 21 and claims dependent thereon. Withdrawal of the rejection is respectfully requested.

### Claim Rejections - 35 USC § 103

Claims 9-13, 17-19, 20, 25, and 26 stand rejected under 35 U.S.C. 103(a) as being obvious over *Harashima et al.* in view of *White et al.* (US Patent No. 5,352,294). The Examiner states that *Harashima et al.* does not disclose a lift plate and *White et al.* discloses a pin support plate (Fig 3-122) for lifting the pins and a rim projecting from the central position (Fig 8-20). The Examiner also states that the motivation to modify the apparatus of *Harashima et al.* with that of *White et al.* is that it provides a support plate for the two sets of lift pins to provide enhanced stability for the lift pins and ensure that they will fall through the stage when retracted/elevated, and it would have been obvious to one having ordinary skill in the art at the time invention was made to replace two sets of lift mechanisms by one lift plate like that of *White et al.* to make the lift mechanism more reliable. Applicant respectfully traverses the rejection.

*Harashima et al.* has been discussed above. *Harashima et al.* does not teach, show, or suggest moving a lift plate toward a substrate support to displace two sets of the lift pins at different distances above the substrate support for contacting a substrate.

*White et al.* discloses a pin support plate 122 to displace a set of support pins 200 for supporting a substrate 108. *White et al.* does not teach, show, or suggest contacting the substrate with a first set of lift pins and contacting the substrate with a second set of lift pins. Thus, even though *White et al.* discloses a lift plate, *White et al.* does not teach, show, or suggest moving a lift plate toward a substrate support to displace two sets of lift pins at different distances above the substrate support for contacting the substrate, as lacking in *Harashima et al.* The combination of *Harashima et al.* in view of *White et al.*, alone or in combination, does not teach, show or suggest moving a lift plate to displace both sets of lift pins projected at different distances above a surface of a substrate support and contacting a substrate with both sets of the lift pins, as recited in claims 9-13, 17-19, 20, 25, and 26.

In addition, Applicant respectfully submits that there is no motivation of the claimed subject matter in the combined teachings of the references. Neither *Harashima et al.* nor *White et al.* discloses moving a lift plate towards a substrate support to displace a first set of lift pins and a second set of lift pins at different distances above a surface of a substrate support. Applicant asserts that the Examiner has not supplied the

requisite motivation from the combination of *Harashima et al.* and *White et al.* The Examiner has failed to show a clear and particular motivation by the skilled artisan to select from the combined disclosures of *Harashima et al.* with *White et al.* On this point, the Federal Circuit has ruled that “[o]ne cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention.” (*In re Fritch* at 1784). In order to avoid using the Applicant’s disclosure as a blueprint to pick and choose certain elements, while ignoring others, the Examiner must supply a clear and particular motivation or suggestion to do so. In the present case, the only suggestion is provided in the Applicant’s disclosure and thus hindsight.

Further, *Harashima et al.* teaches that each of the plurality of drive mechanisms 2 and the elevation mechanism 8 are separately controllable and independent devices to release the wafer using the release pins 1 and then raise (lift) the wafer higher using the lift pins 9. Thus, *Harashima et al.* teaches away from using a common device to displace the release pins and the lift pins, and can not be combined with the teaching of *White et al.* to include a common pin support plate to displace two sets of pins. Therefore, *Harashima et al.* teaches away from moving a lift plate towards a substrate support to displace a first set of lift pins and a second set of lift pins, as recited in claims 9-13, 17-19, 20, 25, and 26.

Accordingly, *Harashima et al.* in view of *White et al.*, alone or in combination, does not teach, show, or suggest actuating a substrate support to project a first set of lift pins a first distance above a surface of the substrate support and to project a second set of lift pins a second distance above the surface of the substrate support that is less than the first distance projected by the first set of lift pins, causing the substrate to form a bowed region between a plurality of the first set of lift pins by contacting a substrate with the first set of lift pins, contacting the substrate in the bowed region with the second set of lift pins, and actuating a lift plate to contact the first set of lift pins and the second set of lift pins, as recited in claims 9-11.

*Harashima et al.* in view of *White et al.*, alone or in combination, does not teach, show, or suggest moving a lift plate towards a substrate support to displace a first set of lift pins and a second set of lift pins, extending the first set of lift pins with the lift plate a first distance above a support surface of a substrate support, extending the second set

of lift pins with the lift plate a second distance above the support surface of the substrate support, wherein the second distance is less than the first distance, causing the substrate to form a bowed region between a plurality of the first set of lift pins by contacting the substrate with the first set of lift pins, and contacting the substrate in the bowed region with the second set of lift pins, as recited in claims 12 and claims dependent thereon.

*Harashima et al.* in view of *White et al.*, alone or in combination, does not teach, show, or suggest actuating a lift plate to contact the first set of lift pins and the second set of lift pins, actuating a substrate support to displace a first set of lift pins and a second set of lift pins, the first set of lift pins movably disposed through the substrate support below a perimeter of the substrate, the second set of lift pins movably disposed through the substrate support below a center portion of the substrate and radially inwards of the first set of lift pins, projecting the first set of lift pins a first distance above a surface of the substrate support, and projecting the second set of lift pins a second distance above the surface of the substrate support that is less than the first distance projected by the first set of lift pins, as recited in claims 25 and 26.

In addition, regarding the dependent claims 20 and 26, *White et al.* does not teach, show, or suggest a rim in the pin support plate 122. *Harashima et al.* in view of *White et al.*, alone or in combination, does not teach, show, or suggest actuating a lift plate to contact the first set of lift pins with a rim of the lift plate that projects from a center portion of the lift plate, as recited in claims 20 and 26.

Accordingly, claims 9-13, 17-19, 20, 25, and 26 are in conditions for allowance and withdrawal of the rejection is respectfully requested.

Claims 3 and 22 stand rejected under 35 U.S.C. 103(a) as being obvious over *Harashima et al.* The Examiner states that *Harashima et al.* does not specifically teach that the projected distances are at least 2 mm apart. Applicant respectfully traverses the rejection of dependent claims 3 and 22 on grounds that *Harashima et al.* does not teach, show, suggest, or motivate actuating a substrate support to project both sets of lift pins above a surface of a substrate support and *Harashima et al.* does not teach, show or suggest actuating a substrate support to displace both sets of lift pins, as

recited in amended claims 1 and 21, which claims 3 and 22 are dependent thereon. Withdrawal of the rejection is respectfully requested.

Applicant presents new claims 27-36 to be considered by the Examiner. Applicant respectfully submits that *Harashima et al.* in view of *White et al.*, alone or in combination, does not teach, show, or suggest projecting a first set of lift pins to lift a perimeter of the substrate a first distance above a surface of a substrate support, projecting a second set of lift pins positioned radially inwards of the first set of lift pins to lift a center portion of the substrate, and then projecting the first set of lift pins to lift the substrate to a transfer position, as recited in claims 27 and claims dependent thereon.

In addition, *Harashima et al.* in view of *White et al.*, alone or in combination, does not teach, show, or suggest contacting a plurality of a first set of lift pins by a surface prior to contacting a second set of lift pins by the surface to lift a perimeter of the substrate with the first set of lift pins and a center portion of the substrate with the second set of lift pins, projecting the first set of lift pins a first distance above a surface of a substrate support, and projecting the second set of lift pins a second distance less than the first distance above the surface of the substrate support, as recited in claims 33 and claims dependent thereon.

In conclusion, the references cited by the Examiner, alone or in combination, do not teach, show, or suggest the invention as claimed.

The secondary references made of record are noted. However, it is believed that the secondary references are no more pertinent to the Applicant's disclosure than the primary references cited in the office action. Therefore, Applicant believes that a detailed discussion of the secondary references is not necessary for a full and complete response to this office action.

Having addressed all issues set out in the office action, Applicant respectfully submits that the claims are in condition for allowance and respectfully request that the claims be allowed.

Respectfully submitted,



---

Keith M. Tackett  
Registration No. 32,008  
PATTERSON & SHERIDAN, L.L.P.  
3040 Post Oak Blvd. Suite 1500  
Houston, TX 77056  
Telephone: (713) 623-4844  
Facsimile: (713) 623-4846  
Attorney for Applicant(s)





ATTY DKT. No.:  
U.S. SERIAL No.:  
FILED:  
APPLICANT:  
TITLE:  
INVENTOR:

**ANNOTATED SHEET SHOWING CHANGES**  
 APPM/004432.D1/DISPLAY/AHRDWR/RKK  
 10/688,384  
 OCTOBER 17, 2003  
 APPLIED MATERIALS, INC.  
 METHOD FOR DECHUCKING A SUBSTRATE  
 SHANG, ET AL.

CONF. NO.: 2231

**FIGURE 1**

**1/6**

